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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,211	02/16/2001	Olafur Josefsson	AD-250J	6122

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EXAMINER	
PHU, PHUONG M	
ART UNIT	**PAPER NUMBER**
2611	

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/788,211	JOSEFSSON ET AL.	
	Examiner	Art Unit	
	Phuong Phu	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) *10-24 and 35-39* is/are withdrawn from consideration.

5)☒ Claim(s) *40-43* is/are allowed.

6)☒ Claim(s) *1,3-6,8,9,25-27 and 31-34* is/are rejected.

7)☒ Claim(s) *2, 7 and 28-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on 5/26/06. Accordingly, claims 1-43 are currently pending; and claims 10-24 and 35-39 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1 and 25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Raghavan (6,415, 003), previously-cited.

-Regarding to claim 1, see figures 2 and 6, and col. 4, line 46 to col. 7, line 47 and col. 10, lines 20-62, Raghavan discloses a system (see figure 2) comprising:|

a transmitter circuit "transmitter" (see col. 4, line 64);

a receiver circuit (200);

a transmission medium (10) having a transfer function (f(z)) for transmitting a transmission signal (a_k) between said transmitter and receiver circuits; and

a calibration circuit (208) responsive to an altered reference signal (r_k) of said transmitter circuit altered by the transmission medium for adjusting the reference signal level (V_{REF}) of the receiver circuits to compensate for variations in the transmission signal due to said transfer function.

-Regarding to claim 25, Raghavan discloses a control circuit (comprising (207)) coupled to the transmission medium to synchronize the adjustment of the reference signal level (see figure 2).

-Regarding to claim 26, Raghavan discloses that the control circuit includes a clock circuit (207) (see col. 4, lines 60-61).

-Regarding to claim 27, Raghavan discloses that the control circuit further includes channel control circuit (206, 211, 202, 203, 212, 201, 204, 205) for controlling, at the receiver, compensations on channel distortion, random noise and signal losses cause by the channel function (f(z)) (see col. 5, line 8 to col. 7, line 47).

Claim Rejections - 35 USC § 102/103

3. Claims 3 are rejected, under 35 U.S.C. 102(e) as being anticipated by, or under 35 U.S.C. 103(a) as being unpatentable by, Raghavan.

-Regarding to claim 3, Raghavan discloses that said transmission medium are transmission lines such as twisted copper pair, coax cable, etc (see col. 4, lines 64-67). These

transmission lines inherently, or obviously by one skilled in the art), has an equivalent circuit model represented by a circuit comprising a capacitor circuit "isolation barrier circuit".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4, 6, 8 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raghavan in view of Hoekstra (5,883,907) (previously-cited).

-Regarding to claim 4, Raghavan discloses that said receiver circuit includes an analog to digital circuit (203) having an analog input coupled to the transmission medium for receiving an analog symbol stream communicated across the transmission medium and providing a digital output signal (x_k) (see figure 2)..

Raghavan does not disclose said transmitter circuit includes a digital to analog circuit having an analog output coupled to said transmission medium and an input for receiving an digital input signal to be communicated across said transmission medium.

Hoekstra discloses a transmitter (12) (see figure 1) for transmitting data symbol stream across a transmission medium (34) to a receiver (14) at the other end wherein the transmitter comprises a digital to analog circuit (D/A) (see figure 2) having an analog output coupled to said transmission medium and an input for receiving a digital data symbol stream (outputted from (80)) to convert said digital data symbol stream into an analog data symbol stream to be

communicated across said transmission medium (see figures 1 and 2, and col. 2, line 31 to col. 3, line 67).

Since Raghavan does not disclose in detail how the transmitter circuit is implemented, therefore, for an application of implementing said Raghavan transmitter circuit, it would have been obvious for one skilled in the art, to implement Raghavan transmitter circuit in such a way that the transmitter circuit would comprise a digital to analog circuit (D/A) having an analog output coupled to said transmission medium and an input for receiving a digital data symbol stream to convert said digital data symbol stream into an analog data symbol stream to be communicated across said transmission medium to be received by the receiver circuit, as taught by Hoekstra, without affecting the overall system performance.

-Regarding to claim 6, Raghavan in view of Hoekstra teaches that said transmitter comprises an encoder circuit (80) responsive to a digital input signal to provide said digital data symbol stream and a digital to analog converter ((D/A) responsive to said digital data symbol stream signal to provide to said transmission medium an analog data symbol stream signal (see Hoekstra, figure 2).

-Regarding to claim 8, as applied to claims 4 and 6, Raghavan in view of Hoekstra discloses that said analog to digital circuit includes an analog to digital converter (203) (see Raghavan, figure 2) responsive to a analog input (r_k) from the transmission medium to provide a digital signal (x_k). Raghavan in view of Hoekstra further teaches that the receiver circuit could be implemented to include a decoder circuit (82) responsive to said digital signal to provide a digital output signal (see Hoekstra, figure 2).

-Regarding to claims 31 and 32, Raghavan in view of Hoekstra discloses said analog output and said analog input can be constant average signals (NRZ, MLT3, etc) having constant averages (see Raghavan, col. 1, lines 31-62).

-Regarding to claim 33, Raghavan discloses that said calibration circuit includes a reference signal capture circuit (104) for capturing an altered reference signal and providing said altered reference signal to said receiver circuit, wherein said altered reference signal compensates for variations in the transmission signal due to said transfer function (see Raghavan, figure 1A).

-Regarding to claim 34, Raghavan discloses that said calibration circuit includes a reference signal averaging circuit (202) connected to said reference signal capture circuit for averaging "smoothing" by "noise filtering" said altered reference signal and providing an averaged altered reference signal to said receiver circuit (see figure 2, and col. 5, line 65 to col. 6, line 2).

6. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raghavan in view of Hoekstra, and further in view by Salinger (prior art of record).

-Regarding to claims 5 and 9, Raghavan in view of Hoekstra discloses that said digital to analog circuit includes a digital to analog converter (D/A) with an input for receiving a digital input signal (see Hoekstra, figure 2), and said analog to digital circuit includes an analog to digital converter (203) (see Raghavan) responsive to a analog signal to provide a digital output signal.

Raghavan in view of Hoekstra does not disclose a modulation circuit responsive to said digital to analog converter for providing an analog output to be transmitted on the transmission

medium and a demodulator circuit responsive to an analog input received from the transmission medium to provide said analog signal to said analog to digital converter.

Salinger teaches using a modulation circuit (24), at a transmitter (TRANSMITTER), to up-convert a signal (to be transmitted on a transmission channel (30) to a receiver (RECEIVER) at a receiving end) to the transmission frequency bandwidth of the transmission channel, being required by his system, and a demodulation (36) at said receiver to down-covert said received up-converted signal for recovering said signal (see figure 2, and col. 5, lines 32-67).

It would have been obvious for one skilled in the art, when building or carrying out Raghavan invention in view of Hoekstra, upon a system's requirement on its transmission frequency bandwidth of a transmission channel, to implement Raghavan invention in view of Hoekstra with a modulation and demodulation, as taught by Salinger, in such a way that the transmitter circuit would comprise a modulation to up-convert the analog output signal outputted from the digital to analog converter to the required bandwidth of the transmission channel for the transmission on the transmission medium, and the receiver circuit would comprises a demodulator for receiving and down-converting said up-converted signal to the analog signal to be provided to the analog to digital converter, in order to meet the system's requirement on its transmission frequency bandwidth.

Allowable Subject Matter

7. Claims 2, 7 and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 40-43 are allowed.

Response to Arguments

9. Applicant's arguments filed on 12/27/05 have been fully considered but they are not persuasive.

The applicant mainly argues that (i) Raghavan does not teach a transmission medium having an unpredictable transfer function, as claimed in claim 1; and (ii) in Raghavan, the signal (r_k) is a transmitted signal from the transmitter "transmitter" (see col. 4, line 64) and a receiver circuit (200); therefore, it is not an altered reference signal of said transmitter circuit, as claimed in claim 1, wherein the altered reference signal is altered by the transmission medium for adjusting the reference signal level of the receiver circuits to compensate for variations in the transmission signal due to the transfer function.

-Regarding part (i), the examiner respectfully disagrees. Raghavan discloses a transmission medium (10) (see figure 2) which has a transfer function (f(z)). Note that in claim 1, the word "unpredictable" in the limitation "an unpredictable transfer function" is not given any patentable weight over Raghavan transfer function (f(z)), and therefore, the limitation is considered just as a transfer function, as being disclosed by Raghavan because the claim does not recite other limitations to describe how unpredictable the "unpredictable transfer function" is in order to make the claimed "unpredictable transfer function" distinguishable from Raghavan transfer function (f(z)).

Further, even if the word "unpredictable" in the limitation "an unpredictable transfer function" of claim 1 were given a weight, it is deemed that limitation "an unpredictable transfer function" is still anticipated by Raghavan transfer function (f(z)) because Raghavan transfer function (f(z)) can be considered unpredictable, and it is explained as the following. In

Raghavan, the function (f(z)) is modeled, as a Z-transformation of the frequency response of the transmission medium (10), in form of a channel function polynomial: $F(z)=f_o+f_1Z^{-1}+f_2Z^{-2}+..+f_NZ^{-N}$; where f_o, f_1, f_2,..., f_N are the polynomial coefficients (see col. 5, lines 20-30). The function F(z) is considered unpredictable because only the coefficient f_o can be assumed to be 1 while the values of the rest of the coefficients f_1, f_2,..., f_N are remained unknown in Raghavan (see col. 5, lines 35-40).

Furthermore, even if the above "unpredictable" characteristic were not mentioned, Raghavan transfer function (f(z)) still can be considered as an unpredictable function, as claimed, because it is the transfer function of transmission lines such as twisted copper pair, coax cable, etc (see col. 4, lines 64-67) which can inherently be modeled as a transmission medium made up by combinations of resistances, capacitances and/or impedances, (in order to clarify this inherency, the examiner now cites Kennedy, "Electronic Communication Systems", pages 212 and 213, and figure 8-2), while the applicant admits that such a transmission medium possesses such an unpredictable transfer function (see Specification of the instant application, pages 8 and 9).

-Regarding part (ii), the examiner also disagrees. Note that the rejection is based on the limitations given in the claimed. See figure 2, Raghavan discloses signal (a_k) being transmitted from a transmitter "transmitter" (see col. 4, line 64) and a receiver circuit (200), (the signal (a_k) considered here equivalent to the limitation "transmission signal"). Raghavan further teaches signal (r_k), being received at the receiver circuit (200) wherein the received signal (r_k) can be called here as an altered reference signal because it is the transmission signal (a_k), which is altered by the transmission medium (10) before being received at the receiver circuit (200), and it

is which the reference signal level V_{REF} of the receiver circuit is based upon to be adjusted in order to compensate for variations in the transmission signal due to the transfer function of the transmission medium (see col. 4, line 46 to col. 7, line 47 and col. 10, lines 20-62). The received signal (r_k), therefore, is considered here equivalent with the limitation "altered reference signal".

Based on the above rationale, it is believed that the limitations of claims are still met and therefore, the rejections are still maintained.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

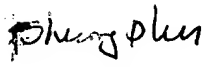
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (8:00 AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phuong Phu
Primary Examiner
Art Unit 2611



PHUONG PHU
PRIMARY EXAMINER

Phuong Phu
07/25/06